

AMENDMENTS TO THE CLAIMS

1-627. (Cancelled)

628. (New) A hydrophobic composite comprising a core material coated by a hydrophobic powder,

said hydrophobic powder including at least one impure element having a hydrocarbon chain attached thereto and said hydrophobic powder being bonded to said core material via a water-based adherent layer.

629. (New) The hydrophobic composite of claim 628, wherein said hydrocarbon chain comprises at least 10 carbon atoms.

630. (New) The hydrophobic composite of claim 628, wherein said hydrocarbon chain is covalently attached to said at least one impure element.

631. (New) The hydrophobic composite of claim 630, wherein said hydrocarbon chain is a residue of a fatty acid having at least 12 carbon atoms.

632. (New) The hydrophobic composite of claim 631, wherein said fatty acid is selected from the group consisting of stearic acid, lauric acid, myristic acid, palmitic acid, oleic acid, linolenic acid and arachidonic acid.

633. (New) The hydrophobic composite of claim 628, wherein said at least one element is selected from the group consisting of a metallic element, a semi-metallic element and a transition metallic element.

634. (New) The hydrophobic composite of claim 628 wherein said at least one element is selected from the group consisting of magnesium, calcium, aluminum, zinc, sodium, barium, zirconium, manganese, titanium, vanadium, chromium, iron and combinations thereof.

635. (New) The hydrophobic composite of claim 628, wherein said hydrophobic powder has an average particle size ranging between 0.02 micron and 50 microns.

636. (New) The hydrophobic composite of claim 628, wherein said hydrophobic powder has a surface area ranging between 1 m²/gram and 60 m²/gram.

637. (New) The hydrophobic composite of claim 628, wherein said core material is selected from the group consisting of a particulate material and a granulate material.

638. (New) The hydrophobic composite of claim 637, wherein said core material has an average particle size ranging between 25 millimeters and 5 microns.

639. (New) The hydrophobic composite of claim 628, wherein said core material is selected from the group consisting of sand, gravel, slag, porcelanit, dolomite, porcelain, basalt, quartz sand, coal ash, chalk, zeolite, montmorillonite, agapultite, flint, bentonite, perlite, mica, wood chips, nut shells, sawdust and combinations thereof.

640. (New) The hydrophobic composite of claim 639, wherein said core material is quartz sand.

641. (New) The hydrophobic composite of claim 628, wherein said water-based adherent layer comprises a water-based gluing agent.

642. (New) The hydrophobic composite of claim 628, wherein said adherent layer comprises a film-forming agent.

643. (New) The hydrophobic composite of claim 642, wherein said film forming agent is a film-forming polyurethane.

644. (New) The hydrophobic composite of claim 642, wherein said adherent layer further comprises a gluing agent.

645. (New) The hydrophobic composite of claim 644, wherein said gluing agent is a volatile hydrocarbon having at least 12 carbon atoms.

646. (New) The hydrophobic composite of claim 645, wherein said gluing agent is selected from the group consisting of liquid asphalt, paraffin wax, beeswax, lanolin wax, linseed oil and combinations thereof.

647. (New) The hydrophobic composite of claim 644, wherein said gluing agent constitutes between about 0.1 and about 50 weight percentages of said adherent layer.

648. (New) The hydrophobic composite of claim 628, wherein said hydrophobic powder further comprises hydrophobic fumed silica.

649. (New) The hydrophobic composite of claim 648, wherein said hydrophobic fumed silica constitutes between 1 and 99 weight percentages of said hydrophobic powder.

650. (New) The hydrophobic composite of claim 648, wherein said hydrophobic powder constitutes between about 0.1 and about 5 weight percentages of the hydrophobic composite.

651. (New) The hydrophobic composite of claim 628, wherein said adherent layer constitutes between about 0.5 and about 7 weight percentages of the hydrophobic composite.

652. (New) The hydrophobic composite of claim 628, wherein said hydrophobic powder constitutes between about 0.1 and about 5 weight percentages of the hydrophobic composite.

653. (New) The hydrophobic composite of claim 628, further comprising at least one additive selected from the group consisting of a coloring agent, a UV resistant agent, a bleaching agent and an abrasive agent.

654. (New) The hydrophobic composite of claim 653, wherein said coloring agent constitutes between about 0.1 and about 2 weight percentages of the hydrophobic composite.

655. (New) The hydrophobic composite of claim 653, wherein said UV resistant agent and said bleaching agent each constitute between about 0.01 and about 2 weight percentages of the hydrophobic composite.

656. (New) A method of preparing a hydrophobic composite, the method comprising:
applying an adherent layer onto a core material;
subsequently coating said core material with a hydrophobic powder, said hydrophobic powder including at least one impure element having a hydrocarbon chain attached thereto, to thereby provide the hydrophobic composite,
said adherent layer bonding said hydrophobic powder to said core material,
said adherent layer comprising a film-forming agent and said applying comprising admixing said core material with an adherent mixture containing said film-forming agent and a volatile solvent, while removing all of said volatile solvent from the mixture of said core material and said adherent mixture, to thereby provide said core material having applied thereon said adherent layer.

657. (New) The method of claim 656, further comprising drying said core material prior to said applying.

658. (New) The method of claim 656, further comprising drying said core material prior to said admixing.

659. (New) The method of claim 656, further comprising, after said coating, curing said hydrophobic composite.

660. (New) The method of claim 656, wherein said removing said volatile solvent is performed by evaporative heating.

661. (New) The method of claim 656, wherein said removing said volatile solvent is performed at room temperature.

662. (New) The method of claim 656, wherein said volatile solvent is an organic solvent having a boiling temperature ranging between about 80 °C and 200 °C.

663. (New) The method of claim 656, further comprising, prior to said coating, admixing said core material with an additive selected from the group consisting of a coloring agent, a UV resistant agent, a bleaching agent and an abrasive agent.

664. (New) The method of claim 656, further comprising, prior to said coating, admixing said core material having thereon said adherent layer with an additive selected from the group consisting of a coloring agent, a UV resistant agent, a bleaching agent and an abrasive agent.

665. (New) The method of claim 656, wherein said core material is selected from the group consisting of a particulate material and a granulate material.

666. (New) The method of claim 665, wherein said core material is selected from the group consisting of sand, gravel, slag, porcelanit, dolomite, porcelain, basalt, quartz sand, coal ash, chalk, zeolite, montmorillonite, agapultite, flint, bentonite, perlite, mica, wood chips, nut shells, sawdust and combinations thereof.

667. (New) The method of claim 666, wherein said core material is quartz sand.

668. (New) The method of claim 665, wherein said core material has an average particle size ranging between 25 millimeters and 5 microns.

669. (New) The method of claim 656, wherein said adherent mixture further comprises a gluing agent.

670. (New) The method of claim 669, wherein said gluing agent is a volatile hydrocarbon having at least 12 carbon atoms.

671. (New) The method of claim 670, wherein said gluing agent is selected from the group consisting of liquid asphalt, paraffin wax, beeswax, lanolin wax, linseed oil and combinations thereof.

672. (New) The method of claim 656, wherein said hydrophobic powder has an average particle size ranging between 0.02 micron and 50 microns.

673. (New) The method of claim 656, wherein said hydrophobic powder has a surface area ranging between 1 m²/gram and 60 m²/gram.

674. (New) The method of claim 656, wherein said hydrophobic powder further comprises hydrophobic fumed silica.

675. (New) The method of claim 674, wherein said hydrophobic fumed silica constitutes between 1 and 99 weight percentages of said hydrophobic powder.

676. (New) The method of claim 656, wherein said adherent layer constitutes between about 0.5 and about 7 weight percentages of said hydrophobic composite.

677. (New) The method of claim 656, wherein said hydrophobic powder constitutes between about 0.1 and about 5 weight percentages of said hydrophobic composite.

678. (New) A method of preparing a hydrophobic composite, the method comprising:
applying an adherent layer onto a core material;

subsequently coating said core material with a hydrophobic powder, said hydrophobic powder including at least one impure element having a hydrocarbon chain attached thereto, to thereby provide the hydrophobic composite,

said adherent layer bonding said hydrophobic powder to said core material,

said adherent layer comprising a water-based gluing agent and said applying comprising admixing said core material with an aqueous adherent mixture containing said water-based gluing agent and an aqueous solvent, while removing all of said aqueous solvent from said mixture of said core material and said adherent mixture, to thereby provide said core material having applied thereon said adherent layer.

679. (New) The method of claim 678, wherein a concentration of said water-based gluing agent in said aqueous adherent mixture ranges between about 1 weight percentage and about 99 weight percentages.

680. (New) The method of claim 678, wherein said aqueous solvent is water.

681. (New) The method of claim 678, wherein removing said aqueous solvent is performed by tumble drying.

682. (New) The method of claim 678, farther comprising, prior to said coating, admixing said core material having thereon said adherent layer with an additive selected from the group consisting of a coloring agent, a UV resistant agent, a bleaching agent and an abrasive agent.